

## **Remarks/Arguments**

### **Examiner Interview**

Applicants wish to thank the Examiner for the courtesy and time she provided for a telephonic interview with Applicants and their representative on March 7, 2007. The Examiner's comments and insight were very helpful and appreciated, and form the basis for the amendments to the specification and claims made herein.

### **In the Specification**

As suggested by the Examiner, the Specification was amended to improve consistency. The term "steps" was replaced with the term "activities", as used throughout the specification. No new matter was added by the replacements.

### **In the Claims**

Claims 2-7, 9-19, and 21-23 were pending prior to this response. By the present communication, claims 3, 10-14 and 16-23 are canceled, claims 2, 4-7, 9, and 15 are amended, and new claims 24-39 are added. No new matter was added by any amendment or new claim. Accordingly, claims 2, 4-7, 9, 15, 24-39 are currently pending in the application.

As suggested by the Examiner, claim language was amended or added to more particularly distinguish the present invention from the cited art. In particular, the Examiner suggested incorporating material from the descriptions of Figures 2 and 3 to define the terms "stroke" and "stroke groups" in the claims. Support for these amendments and the new claims is found throughout the specification, the original claims, and the previously amended claims, as described below.

Support for amendments to claims 2 and 4-7 is found in the original and previously presented claims. The current amendments are made to reflect dependency on new method claim 34 and for consistency of language.

The amendments to claim 9 incorporate elements from claims 10-14, which are hereby canceled. Likewise, the amendments to claim 15 incorporate elements from claims 16-19, which are hereby canceled.

Support for new claims 24 (computing system claim) and 36 (method claim) is found in claims 21-23, now canceled, and throughout the specification. For instance, support for the following terms and phrases is found as noted:

*“automatically”* – support is found at least on page 3, paragraph 2, line 2 (“...automatically analyze musical data,..”), and page 9, first paragraph, line 1 (“This invention automates...”).

*“wherein a stroke is a note or a chord”* – support is found at least on page 14, second paragraph, lines 7-9, that describe notes and chords being subtypes of strokes, and in Figure 4.

*“wherein a stroke group comprises sequential strokes of the musical composition that can be played at one positional location on the musical instrument”* – support is found at least on page 9, first paragraph, lines 4-7, that describe a positional range stroke group **206** as that group of sequential strokes that can be played at the same positional range of the instrument, i.e., that the hand on the instrument can play all the sequential strokes in the stroke group in one place. That the strokes in a stroke group are played in sequential order is clear from Figure 2 (and the description thereof on page 9), wherein the time dimension **202** in Figure 2 displays the strokes in sequential order, i.e., the time at which the stroke is played relative to its surrounding strokes is displayed vertically. Support is also found in Figure 2 itself, which depicts strokes (e.g.,

204) and the one or more stroke groups (e.g., 206, 208, 210) within which each stroke falls.

*“wherein each selection is based on the shortest path of hand and fingering movement between sequential strokes”* – support for “shortest path” is found in Figure 3B. Support for “sequential strokes” is found in Figures 2, 3 and 4, and the discussion of same on pages 9-14, wherein it is discussed that selection of a stroke group for a certain stroke is based on the stroke group (and, thus, instrument position) from which the musician’s hand(s) will be coming (if the certain stroke is not the first stroke in the composition), as well as the stroke group to which the musician’s hand(s) will next be going (if the certain stroke is not the last stroke in the composition). The time axis in Figure 2, and discussion of same on page 9, first paragraph, provides the basis for “sequential”. Additional support is found in Figure 3, and the discussion on page 13, wherein it is disclosed that stroke group selection for a certain stroke is relative to the stroke group that was selected for the previously handled stroke, as well as the stroke group that will be used for the later stroke, i.e., sequential strokes. This concept is concisely reiterated in the last sentence of the specification, where it states that fingering for the same stroke appearing multiple times in the same musical composition may be “completely different depending on the other strokes around the stroke.”

The element of *“hand and fingering positioning”* and *“hand and fingering movement”* recited in claims 24 and 36 is repeatedly referred to in the Figures (see, e.g., 356 and 358 in Figure 3, described on pages 7 and 14) and the specification (see, e.g., page 9, second paragraph; page 10, first paragraph, line 2; and elsewhere).

Support for new claims 25 – 34 is found in the original claims 1, 4-7. Support for new claim 25 also is found on pages 15 (last paragraph) to page 16.

Support for the instrument language in claims 26-29, 37 and 38 is found at least on page 15 (last paragraph) through page 16, wherein guitar, string, fret, piano, hand, fingers, and key are recited and discussed. “String instrument” also finds support on page 3, first paragraph,

Support for new claims 33 and 34 is as set forth above for claims 9 and 15.

Support for new claim 35 is found in claim 22, now canceled.

Support for new claim 39 is as stated for new claims 24 and 36, above. Support for the language in part (c) (ii) is found at least on page 3, third paragraph (discusses musicians’ desire for different fingering options), and page 9, last paragraph, to page 10 (discusses different fingering determinations based on user preferences).

### **Claim Objections**

The Examiner objected to Claim 21, alleging it was very repetitive in language. Claim 21 has been canceled, thus mooted this objection.

### **The Rejection under 35 U.S.C. §102(b)**

Claims 3, 5, 6, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by the U.S. patent to Rogers (US 6,080,925; “Rogers”). The Examiner stated that with respect to Claim 21, Rogers teaches a method for determining the correct and appropriate fingering for a given musical instrument comprising a memory or storage device, an inputting means, an output means, and a means for calculating the optimum and alternate fingering, or strokes and stroke groups performed by the user during fingering, of different musical data for an interested party. Rogers is also said to teach displaying the fingering

information in tablature form (claim 3), and teaches alternate fingering for easier use and for a preferred tonal style (claims 5 and 6). The Examiner applied the same reasoning to reject claims 22 and 23.

Claims 3, 21-23 have been canceled, thus mooted the rejection of claims 3 and 21-23, and claims 5, 6 dependent thereon.

Newly added claims 24 and 34, and claims dependent thereon, are not anticipated by Rogers. As set forth in present claim 24, directed to a computing system, and in present claim 34, directed to a related method, the objective of the present invention is to provide hand and fingering information for performing a musical composition on a musical instrument, wherein the hand and fingering information is based on the sequential order in which all strokes (e.g., notes or chords) of the composition are to be played and the shortest path between hand and fingering movements the musician needs to make in order to play the strokes in sequential order.

A key distinction between Rogers and the present invention is that the present computing system and method identify all the notes or chords ("strokes") of the input musical composition, and then identify locations on the instrument where sequential strokes of the musical composition can be played at the same positional location on the musical instrument. Each collection of sequential strokes that can be played at the same positional location on the instrument is a "stroke groups" (see Figure 2 for a picture of sequential strokes assigned to stroke groups). The computing system automatically evaluates the identified stroke groups and selects a stroke group to be used to determine the hand and fingering information for each stroke. For claims 24 and 36, the selection of each stroke group is based on the shortest path of hand and fingering movement that a musician needs to make to play sequential strokes. Significantly, the stroke group selected for use in determining the hand and fingering for one stroke takes into account the stroke group that was selected for use in determining the hand

and fingering for the previous stroke, and likewise will be relevant for the selection of the stroke group corresponding to the stroke that follows . This selection process meets the objective of identifying efficient hand and fingering positioning information for performing the entire musical composition that is input into the system. Accordingly, the output from the computing system provides a musician with efficient hand and fingering positioning information for performance of the musical composition.

No where in Rogers is the concept of identifying all strokes in an input musical composition, or identifying all stroke groups corresponding to the strokes taught or suggested. Moreover, Rogers provides no teaching or suggestion that the finger positioning provided by its device for a single stroke is based in any way on the finger position of the stroke that came before or on the finger positions that will come after the single stroke, i.e., Rogers does not teach or suggest that the sequential relationship between strokes is relevant, and Rogers does not rely on such information. Instead, Rogers is strictly concerned with providing tablature information for a single note that a user has manually identified by turning dials and switches *on an isolated note by isolated note basis*, to obtain fingering information for the note of interest. Rogers handles each note separately, without any regard to the hand and fingering positioning transition or movements that are needed to play sequential strokes.

Another aspect of the present invention that is distinct over Rogers is that the present computing system and method *automatically* identifies strokes and stroke groups, and *automatically* calculates hand and fingering positioning information. The Rogers device requires a user to manually turn dials and/or switches to “tell” the device the nature of the note for which tablature is desired. Thus, identification of strokes is manual with the Rogers device and automatic with the present computing system.

Applicants' arguments similarly apply to the novelty of newly added claim 39 over the Rogers disclosure. Rogers does not anticipate a computing system for providing hand and fingering information for performing a musical composition on a musical instrument, wherein the hand and fingering information is based on the sequential order in which all strokes (e.g., notes or chords) of the composition are to be played and the hand and fingering movements the musician needs to make in order to play the strokes in sequential order according to a preferred mode of performance, e.g., a preferred tonal quality, ease of movement, etc. As stated, Rogers does not teach identification of all strokes or stroke groups – automatically or otherwise – and does not teach any selection of stroke groups to yield a preferred performance mode. Rogers teaches only a note-by-note retrieval of tablature information and, therefore, does not anticipate claim 39.

Based on a thorough review of the cited Rogers patent, Applicants conclude that Rogers does not anticipate each and every element of new claims 24, 36, and 39, and claims that depend thereon and, therefore, cannot anticipate the present invention. Applicants respectfully request that the present claims be found novel under 35 U.S.C. §102(b).

#### Applicants' request for reconsideration

In the Amendment filed January 23, 2006, Applicants provided an element-by-element analysis of the patentable differences between Claims 21 and 22 and the Rogers invention, and asserted that any one of these differences is enough to successfully rebut rejection of those claims under 35 U.S.C. §102(b) as anticipated by Rogers. The Examiner responded to most of Applicants' arguments in this regard (see page 8 of current Office Action), however the Examiner did not address the key distinction between the present invention and Rogers.

In their response, Applicants pointed out that the present invention comprises a “processor for identifying all strokes and stroke groups and calculating fingering for the complete performance-ready composition”. Applicants indicated that this element was absent in the Rogers disclosure (Amendment, page 11, Table 1). The Examiner did not respond to Applicants’ assertion that Rogers does not disclose a processor that identifies all strokes and stroke groups. Moreover, the Examiner has not identified any passage in Rogers in which a stroke group (as defined in the present specification) is even disclosed. This absence is, in fact, not surprising, as the Rogers device is not directed toward automatic identification of strokes and stroke groups, nor is it directed to automatic calculation of efficient hand and fingering positioning information that is based on stroke groups and/or the hand and fingering positions corresponding to sequential strokes.

Because Rogers does not disclose each and every element of the present invention, Rogers could not support rejection of claims 21-22 (now canceled) under 35 U.S.C. §102(b). That the present claim set has been amended to, in part, more particularly describe a “stroke” and a “stroke group”, does not change the fact that Rogers does not teach or disclose the concept of stroke groups or their use to determine hand and fingering positioning information.

In an effort to hasten prosecution of this application, Applicants canceled claims 21-22, amended the present claim set, and filed a Request for Continued Examination. Nevertheless, should the Examiner find it appropriate to revisit the previous rejection of claims 21-22 and the record on this point, then Applicants respectfully request that the Examiner also reconsider the finality of the present Official Action. In the event the finality of the Official Action was premature, then Applicants respectfully request that the Examiner consider removing the finality of the Action and consider the present Amendment without the need for, and expense of, Continued Examination.



### The Rejection under 35 U.S.C. §103(a)

Claims 2 and 4 are rejected under 35 U.S.C. §103(a), as being unpatentable over Rogers in view of the U.S. patent to Hesnan (U.S. 5,639,977).

Claims 7, 13, and 14 are rejected under 35 U.S.C. §103(a), as being unpatentable over Rogers in view of the U.S. patent application to Sitrick et al. (2003/0110925). Claims 13 and 14 are canceled in favor of claim 9.

Claim 7 also is rejected under 35 U.S.C. §103(a), as being unpatentable over Rogers in view of the U.S. patent application to Michero (U.S. 6,331,668).

Claims 9-12, 15, 16 and 19 are rejected under 35 U.S.C. §103(a), as being unpatentable over Rogers in view of the U.S. patent to Fukada (U.S. 6,107,557). Claims 10-12 are canceled in favor of claim 9, and claims 16 and 19 are canceled in favor of claim 15.

Claims 17 and 18 are rejected under 35 U.S.C. §103(a), as being unpatentable over Rogers in view of the U.S. patent to Tice et al. (U.S. 6,751,439). Claims 17 and 18 were canceled in favor of claim 15.

In each rejection, the Examiner alleges Rogers teaches all elements of the rejected claim(s) but one; the cited secondary reference is alleged to teach the missing element. The Examiner concludes that it would have been obvious for one of skill in the art, at the time of the invention, to incorporate the missing element from the cited secondary reference into the Rogers device and, thereby, reach the elements of the rejected claim(s). Applicants respectfully disagree.

For a rejection under 35 U.S.C. §103(a) to stand, the Examiner must show that a specific combination of references teaches each and every element of the rejected claim and that one of skill in the art would have been motivated, at the

time of the invention, to combine the references in such a manner to practice the method of the rejected claim. The present rejections do not meet these criteria.

Each of the claims rejected, or presumed rejected, under 35 U.S.C. §103(a) depends from claim 24 or 36. As discussed in the arguments in response to the rejection under 35 U.S.C. §102(b), Rogers does not teach each and every element of claim 24 or claim 36. In brief, Rogers does not teach a computing system for automatically determining hand and fingering positioning information for performing a musical composition on a musical instrument, comprising (a) a memory, (b) an input device, (c) a processor for automatically identifying all strokes and stroke groups in the musical composition, for selecting stroke groups based on the shortest path of hand and fingering movement between strokes, for determining efficient hand and fingering information for the input musical composition, and (d) outputting the results. Rogers also does not teach a method for using such a computing system.

As noted, a particularly key distinction between the invention of claims 24 and 36, and Rogers, is that the invention set forth in claims 24 and 36 identifies all strokes in the input musical composition, identifies all stroke groups corresponding to such strokes, selects stroke groups to use to determine hand and fingering positional information, determines efficient hand and fingering positioning information from the selected stroke groups, and outputs the resultant hand and fingering information for performing the musical composition on the instrument. These elements are not disclosed in the Rogers reference, as discussed above.

A review of the cited references reveals that none teaches or suggests the elements missing from Rogers as Rogers relates to claims 24 and 36. If, as alleged by the Examiner, one of ordinary skill in the art were to combine Rogers with any of the cited references to arrive at a device embodying the combined elements, then that device would still be missing at least the key feature of the

present invention, i.e., none of the hypothetical devices resultant from the various combinations of art would embody the feature of automatically identifying strokes and strokes groups, and automatically selecting and using certain stroke groups based on the sequential relationship of the strokes to be played in the musical composition, to determine efficient hand and fingering information for performing the input musical composition.

Accordingly, none of the combination of references cited in support of the rejections under 35 U.S.C. §103(a) can support the rejection. Applicants respectfully request that the rejections under 35 U.S.C. §103(a) be removed.

#### Repeated Request for Refund

A Petition for Extension of Time and a check in the amount of \$510.00 were mailed on November 21, 2005 in accordance with a three month extension in which to reply to the previous Official Action, dated August 24, 2005. As Applicants responded with the two month extension period, in the Amendment filed January 23, 2006, Applicants requested a refund of \$285.00, the difference between the fee for a two month extension of time and the fee for a three month extension of time (small entity). Applicants have not yet received a response to this request for a refund and respectfully resubmit their request.

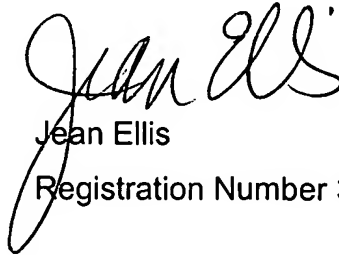
#### Conclusion

In view of the above amendments and remarks, allowance of all pending claims is respectfully requested.

A good faith effort has been made to place this application in condition for allowance. If the Examiner believes that a telephonic interview would hasten the prosecution of the present application, then she is invited to call Applicants' representative, at 858-780-9620.

Applicants believe that no additional fees are due in connection with the present Amendment. However, if any fee is due, please deduct it from the refund owed (see above) or notify Applicants of the deficiency and payment will be promptly made.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jean Ellis". The signature is fluid and cursive, with the first name "Jean" and last name "Ellis" clearly distinguishable.

Jean Ellis

Registration Number 36505